UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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OFFICE OF THE REGIONAL ADMINISTRATOR

FEB 0 3 2016

MEMORANDUM

SUBJECT: ORD Support for a Methyl Bromide Air Emission and Fate Research Effort

FROM: Dennis McLerran, Regional Administrator
Region 10

TO: Robert J. Kavlock, Ph.D., Deputy Assistant Administrator
Office of Research and Development

Region 10 has been working with the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, the Idaho State Department of Agriculture, and a group of farmers on a pesticide issue in Idaho. We have spoken with Jace Cuje and Brian Gullett of your staff about a research proposal to help address the issue and they suggested we contact you to formally request the Office of Research and Development's assistance. We are requesting that ORD perform a combustion emissions study of the inorganic bromide in hay. The hay in question was grown in fields previously treated with methyl bromide (MeBr) to control a nematode infestation. Some of the crops from the MeBr-treated fields have bromide concentrations so high that they must be disposed of, rather than used as animal fodder.

In order to reduce the financial impact on the farmers who have already effectively lost this crop, we are working with our partners to investigate alternatives to landfilling the contaminated hay, which would be very expensive for the farmers. The farmers have expressed an interest in burning the hay crop, but according to the Idaho Department of Environmental Quality, this approach would need to consider air emissions and whether they produce hazardous conditions for farm workers and rural residents in close proximity to the burns. In addition to the analysis of the resulting air emissions, we also need to understand the potential transport and fate of any bromide remaining in the ash from the combusted hay. Burning the crop is an attractive option for farmers because it may provide an inexpensive means for disposing of the bulk of the contaminated crop, but we need to consider effective avenues for also removing inorganic bromide from the fields, allowing them to be used to safely grow crops in the future.

Region 10 is asking ORD to perform a combustion study using samples of the hay with high bromide levels. We would also like ORD's assistance with modeling the potential transport, fate and toxicity of the constituents in the resulting combustion emissions and residues. This information will allow us to assess whether the combustion of these crops can safely proceed without impacting public health or the environment and what might be effective options for removing bromides from the fields.

I have attached a background paper with more information on the use of MeBr on these fields. Questions related to the proposed project can be directed to Linda Anderson-Carnahan, Associate Director of our Office of Ecosystems, Tribal and Public Affairs, or Dirk Helder in our Idaho Operations Office. Any assistance ORD can provide to help answer these important human health and environmental questions would be greatly appreciated. Thank you for your consideration of this request.

Background on the Use of MeBr on Idaho Fields

On April 19, 2006, APHIS and ISDA announced the detection of Pale Cyst Nematode (PCN), *Globodera pallida*, a major pest of potato crops in Idaho potato fields. PCN can remain viable for up to 30 years in the absence of a host crop. This was the first detection of the pest in the United States and immediately impacted Idaho and U.S. trade negatively. A cooperative regulatory program was immediately initiated to determine the scope of the infestation and stop the spread of the pest. Twenty-six fields covering approximately 2,900 acres in Idaho are considered PCN infested. In 2007, a program to treat fields testing positive for PCN began. The program included spring MeBr treatments and these treatments continued on an annual basis through 2014. Some infested fields were treated up to five times with MeBr, while other fields have only been treated once. Treatments were conducted by an experienced fumigation contractor who specializes in the application of MeBr products to soil. All treatments were conducted within pesticide label requirements.

In March 2014, an owner of two fields treated with MeBr raised concerns about illnesses in cattle that were fed alfalfa and pea/oat/barley fodder grown on previously fumigated fields. The owner reported that his herd had experienced lethargy, weakness, and varied illnesses, and that there had been a spike in the calf mortality rate when the cows were given feed from treated fields. The owner worked with various veterinarians and multiple other causes of the illnesses were ruled out. The owner then tested the fodder grown on one field in 2013 and alfalfa hay grown on two fields in 2014 for bromide. The tests showed that all of the samples contained bromide well above expected levels. APHIS subsequently conducted independent analyses of approximately 500 samples of feed and other commodities grown on MeBr-treated fields as well as nearby untreated fields, and confirmed that treated fields contain high levels of bromide, well above background levels and the existing, EPA approved post-harvest bromide tolerances of 50 ppm for most crops. A second alfalfa grower is seeing similar bromide residues in his crops.

Out of an abundance of caution, APHIS decided not to use methyl bromide in Idaho in 2015 and will not resume its use in Idaho until or unless there is enough evidence for its safe use and compatibility with crops typically grown in southeast Idaho.

Currently, there is in excess of 2,000 tons of contaminated hay owned by two family farmers that will need to be disposed of. If burning the contaminated crop is not an option, it will likely go to the county landfill at a cost of $50 per ton. There is an additional 220 acres of wheat straw owned by another farmer that cannot be harvested and sold due to the high bromide levels and there is also 1,700 acres of straw that was left on the ground and will not be harvested. The farmers could till the straw into the ground to supplement soil health, however, this practice will likely return the bromide back into the soil where it may remain high for many years. The farmers want to explore options that will both provide a cost-effective and safe means of disposing of contaminated crops and remove the bromide from the fields. Harvesting the hay from the fields and disposing of it in landfills is an expensive option that most farmers cannot afford, particularly after they have already lost the value of their crop. Field burning or burning the harvested crop could be an attractive option because it would provide for an economical way to dispose of the plant material. However this is only a viable option if it can be done safely and does not negatively affect the health of farm workers and nearby neighbors as well as ecosystems.

Field burning is regulated by the Idaho Department of Environmental Quality (IDEQ). They monitor field burning across the State and give approval for burning individual fields based on current and predicted air quality conditions and proximity to towns, schools, hospitals, etc.

IDEQ determines if pollutant levels are within an acceptable range and smoke is expected to disperse with minimal impact to public health and safety, with special consideration given to sensitive populations. IDEQ has requested additional information from EPA that will allow them to make more informed decisions to ensure protection of human health and the environment before they will allow any field burning to occur on fields previously treated with MeBr.

The APHIS and ISDA quarantine program will likely continue for another 10-15 years. Farmer's fields will continue to be impacted by high bromide residues for many years and field burning may be one option that could help farmers impacted by MeBr treatments. The ability to safely burn fields treated with MeBr or harvested crops that have been grown on these fields and to ensure the safety of farm workers, nearby residents and aquatic and terrestrial ecosystems will remain immensely important for many years to come.